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Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date
148	1.	5,284,748	02/22/94	Engelhardt, et al.			Date
	2.	5,288,609	02/08/94	Mroczkowski, et al.			
	3.	5,360,895	11/01/94	Hainfield, et al.			
	4.	5,384,265	01/24/95	Kidwell, et al.	- ·		
	5.	5,472,881	12/05/95	Beebe, et al.			
	6.	5,599,668	02/04/97	Stimpson, et al.		\wedge	
	7.	5,637,508	06/10/97	Kidwell, et al.	1 /		
	8.	5,751,018	05/12/98	Alivisatos, et al.	/		
	9.	5,939,021	08/17/99	Hansen, et al.	1		
M	10.	5,990,479	11/23/99	Weiss, et al.			

FOREIGN PATENT DOCUMENTS

		Document Number	Date		Country	Class	Subclass	Translation Yes No
W	11.	WO 93/10564	27 May 93	PCT		7.		100 110
	12.	WO 98/10289	12 March 98	PCT			· /	
	13.	WO 99/23258	14 May 99	PCT		+		
	14.	WO 99/21934	06 May 99	PCT		\rightarrow		
25	15.	WO 99/20789	29 April 99	PCT			1	

OTHER DOCUMENTS - Including Author, Title, Date, Pertinent Pages, Etc.

16. O.D. Velev, et al., "In Situ Assembly of Collordal Particles into Miniaturized Biosensors," Langmuir, Vol. 15, No. 11, pp. 3693-3698, May 25, 1999

Examiner	Date Considered Ulzzloy	
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M	1.	4,193,983	3/18/80	Ullman et al.	1		Jate
1	2.	4,256,834	3/17/81	Zuk et al.		/-	
	3.	4,261,968	4/14/81	Ullman et al.		. /	
	4.	4,313,734	2/2/82	Leuvering			
	5.	4,318,707	3/9/82	Litman et al.	1		
	6.	4,650,770	3/17/87	Liu et al.		1	
	7.	4,713,348	12/15/87	Ullman		1'	-
	8.	4,853,335	8/1/89	Olsen et al.			
	9.	4,868,104	9/19/89	Kurn et al.	· .	V	
. •	10.	5,225,064	7/6/93	Henkens et al.		\\	
	11.	5,294,369	3/15/94	Shigekawa et al.			
	12.	5,384,073	1/24/95	Shigekawa et al.			
-	13.	5,384,265	1/24/95	Kidwell et al.			
	14.	5,460,831	10/24/95	Kossovsky et al.			
	15.	5,472,881	12/5/95	Beebe et al.			
·	16.	5,514,602	05/07/96	Brooks, Jr. et al.			
·	17.	5,521,289	5/28/96	Hainfeld et al.			
	18.	5,543,158	8/6/96	Gref et al.			
	19.	5,571,726	11/05/96	Brooks, Jr. et al.		: 1	
	20.	5,665,582	9/9/97	Kaushch et al.	. 1		
M	21.	5,681,943	10/28/97	Letsinger et al.			

	OTHER DOCUM	ENTS - Including Auth	or, Title, Date, Per	rtinent Pages, Etc.	•
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	Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing

FOREIGN PATENT DOCUMENTS

		Document Number	Date		Country	Class	Subclass	Translatio	_
PH	22.	WO 89/06801	7/27/89	PCT				162	No
	23.	WO 97/40181	10/30/97	PCT		+\-		1	
	24.	WO 98/04740	2/5/98	PCT		+		 	<u> </u>
	25.	WO 99/23258	10/30/98	PCT	·		/	 	
	26.	0 630 974 A2	06/21/94	EPO		-	\	· ·	
RH	27.	0 667 398 A2	8/16/95	EPO		1/	\	 	

OTHER DOCUMENTS - Including Author, Title, Date, Pertinent Pages, Etc.

1		Aliciate and 1 "O
141	28.	Alivisatos et al., "Organization of 'nanocrystal molecules' using DNA," Nature, Vol. 382, pp. 609-611 (1996)
	29.	Bain, et al., "Modeling Organic Surfaces with Self-Assembled Monolayers," Angew. Chem. Int. Ed. Engl., Vol. 28, pp. 506-512 (1989)
	30.	Bradley, "The Chemistry of Transition Metal Colloids," Clusters and Colloids: From Theory to Applications, G. Schmid, Editor, BCH, Weinheim, New York, pp. 459-542 (1994)
	31.	Brust et al., "Novel Gold-Dithiol Nano-Networks with Non-Metallic Electronic Properties," Adv. Mater., Vol. 7, pp. 795-797 (1995)
	32.	Chen et al., "A Specific Quadrilateral Synthesized from DNA Branched Junctions," J. Am. Chem. Soc., Vol. 111, pp. 6402-6407 (1989)
	33	Chen & Seeman, "Synthesis from DNA of a molecule with the connectivity of a cube," <i>Nature</i> , Vol. 350, pp. 631-633 (1991)
	34.	Chen et al., "Crystal Structure of a Four-Stranded Intercalated DNA: d(C ₄) ^{†‡} Biochem., Vol. 33, pp. 13540-13546 (1994)
PHI	35.	Dagani, "Supramolecular Assemblies DNA to organize gold nanoparticles," Chemical & Engineering News, p. 6-7, August 19, 1996

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Form PTO-1449	S. Department of Commerce Patent and Trademark Office	Atty. Docket No.	ial No.	· .
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	T	OTHER DOCUMENTS - Including Author, Title, Date, Pertinent Pages, Etc.
RM	36.	Dubois & Nuzzo, "Synthesis, Structure, and Properties of Model Organic Surfaces," Annu. Rev. Phys. Chem., Vol. 43, pp. 437-464 (1992)
	37.	Elghanian et al., "Selective Colorimetric Detection of Polynucleotides Based on the Distance-Dependent Optical Properties of Gold Nanoparticles," Science, Vol. 277, pp. 1078-1081 (1997)
	38.	Grabar et al., "Preparation and Characterization of Au Colloid Monolayers," Anal. Chem. Vol. 67, pp. 735-743 (1995)
	39.	Hacia et al., "Detection of heterozygous mutations in BRCA1 using high density oligonucleotide arrays and two-colour fluorescence analysis," <i>Nature Genet.</i> , Vol. 14, pp. 441-447 (1996)
	40.	Jacoby, "Nanoparticles change color on binding to nucleotide target," Chemical & Engineering News, p. 10, August 25, 1997
	41.	Letsinger et al., "Use of Hydrophobic Substituents in Controlling Self-Assembly of Oligonucleotides, J. Am. Chem. Soc., Vol. 115, pp. 7535-7536 (1993)
	42.	Letsinger et al., "Control of Excimer Emission and Photochemistry of Stilbene Units by Oligonucleotide Hybridization," J. Am. Chem. Soc., Vol. 116, pp. 811-812 (1994)
	43.	Marsh et al., "A new DNA nanostructure, the G-wire, imaged by scanning probe microscopy," <i>Nucleic Acids Res.</i> , Vol. 23, pp. 696-700 (1995)
	44.	Mirkin, "H-DNA and Related Structures," Annu. Review Biophys. Biomol. Struct., Vol. 23, pp. 541-576 (1994)
	45.	Mirkin et al., "A DNA-based method for rationally assembling nanoparticles into macroscopic materials," Nature, Vol. 382, pp. 607-609 (1996)
	46.	Mirkin et al., "DNA-Induced Assembly of Gold Nanoparticles: A Method for Rationally Organizing Colloidal Particles into Ordered Macroscopic Materials," <i>Abstract</i> 249, Abstracts of Papers Part 1, 212 ACS National Meeting 0-8412-3402-7, American Chemical Society, Orlando, FL. August 25-29, 1996
	47.	Mucic et al., "Synthesis and characterizations of DNA with ferrocenyl groups attached to their 5'-termini: electrochemical characterization of a redox-active nucleotide monolayer," Chem. Commun., pp. 555-557 (1996)
1	48.	Mulvaney, "Surface Plasmon Spectroscopy of Nanosized Metal Particles," Langmuir, Vol. 12, pp. 788-800 (1996)
MI	49.	Rabke-Clemmer et al., "Analysis of Functionalized DNA Adsorption on Au(111) Using Electron Spectroscopy," <i>Langmuir</i> , Vol. 10, pp. 1796-1800 (1994)

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Examiner	Alm A	/ /	Date Considered		/	
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			OTHER DOCUMEN	TS - Including Au	. : uth	or, Title, Date, Pertine	ent Pag	es Etc		•
l n	W	50.	Roubi, "MOLECULAI Chemical & Engineeris	MACHINES - N	ลทณ	device with rotating a	s assemb	led from synthe	tic DNA.	"
	1	51.				nanes," New J. Chem., V				
		52.	Shaw & Wang, "Knotting	ng of a DNA Chain	Du	ring Ring Closure," Scien	ce. Vol.	260 nn 533.52	6 (1002)	
		53.	Shekhtman et al., "Stero pp. 757-763 (1993)	structure of replicat	ive	DNA catenanes from euk	aryotic c	ells," <i>New J. Ch</i>	em. Vol.	17,
		54.	Smith and Feigon, "Qua pp. 164-168 (1992)	druplex structure of	Ox	ytricha telomeric DNA o	ligonucle	otides," Nature	Vol. 356	j,
		55.	Thein et al., "The use of	synthetic oligonucle	eotic	des as specific hybridizati	on probe	s in the diagnos	is of gene	tic
		56.		and Characterization		niversity Press, Oxford, N Five-Arm and Six-Arm I				
		57.	Wang et al., "A DNA A	otamer Which Binds	s to	and Inhibite Thrombin E-				
1		58.	Weisbecker et al., "Mole) Aliphatic Thiols on Gold				
		59.				n., Vol. 263, pp. 1095-10			oı. 12, pp	<i>'</i> .
1,	1	60.	Zhang et al., "Information	nal Liposomes: Com	mle	you Designed Co. Of 1	y8 (1988))		
<u> / Vľ</u>	V		and Liposomes," Tetrahe	dron Lett., Vol. 37,	pp.	6243-6246 (1996)	teryl-conj	jugated Oligoni	cleotides	
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	2.	4,454,234	06/12/84	George H. Czerli	nski		-	-	
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	4.	5,053,471	10/01/91	Goto, et al.,		-	-/	-	
	5.	5,342,909	08/30/94	Grubbs, et al.,		1	/_		
	6.	5,639,620	06/17/97	Silman, et al.,		X			
1	7.	5,736,413	04/07/98	Uzan, et al.					
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FOREIGN PATENT DOCUMENTS

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WI	1.	WO 97/00995	9 January 1997	PCT	-		Yes	No
M	2.	WO 98/28368	2 July 1998	PCT				
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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U.S. PATENT DOCUMENTS

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W	1.	5,837,859		11/17/98	Teoule et al.	+	<u> </u>	Appropriate
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FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Trans	slation
M	3.	WO 00/33079	8 June 2000	PCT			Yes	No
M	4.	231556	28 August 2001	Japan				

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc).

M	5.	Fraser. C., et al., "Synthesis of Glycopolymers of Controlled Molecular Weight by Ring-Opening Metathesis Polymertzation Using Well-Defined Functional Group Tolerant Tuthenium Carbene Catalysts," Macromolecules, Volume 28, No. 21, p., 7248-7254 (1995)
M	6.	Sinner, F., et al., "A New Class of Continuous Boltman Boltman Continuous Boltman Continu
		Polymerization: A straightforward Route to Functionalized Monoliths," <i>Macromolecules</i> , Vol. 33, p. 5777-5786 (2000)

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EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if